References

Abthagir, P.S. Saraswathi, R. "Electronic properties of polyindole and polycarbazole Schottky diodes." *Org. Electron.* **5** (2004) 299–308.

Ahamad, M. A. Basir, N. I. Yahaya, N.k. "Microwave assisted rice husk based activated carbon for adsorption of methylene blue dye." *Int. J. Petrochem. Res.,* **2** (2) (2018) 162-164.

Ahammad, A.S. Shah, S.S. Odhikari, N. Hasan, M.M. Islam, T. Pal, P.R. Qasem, M.A.A. Aziz, M.A. "Porous tal palm carbon nanosheets: preparation, characterization and application for the simultaneous determination of dopamine and uric acid." *Nanoscale Adv.* **1** (2019) 613–626.

Alas, M.O. Gungor, A. Genç, R. Erdem, E. "Feeling the power: robust supercapacitorsfrom nanostructured conductive polymers fostered with Mn^{2+} and carbon dots", *Nanoscale.* **11** (2019) 12804–12816.

Amans, D. Diouf, M. Lam, J. Ledoux, G. Dujardin, C. "Origin of the nano-carbon allotropes in pulsed laser ablation in liquids synthesis." *J. Colloid Interface Sci.,* **489** (2017) 114–125.

An, K.H. Kim, W.S. Park, Y.S. Choi, Y.C. Lee, S.M. Chung, D.C. Bae, D.J. Lim, S.C. Lee, Y.H. "Supercapacitors using single-walled carbon nanotube electrodes." *Adv. Mater.,* **13** (2001) 497–500.

An, T. Cheng, W. "Recent progress in stretchable Supercapacitors." *J. Mater. Chem. A.,* **6** (2018) 15478-15494.

An, Y. Yang, Y. Hu, Z. Guo, B. Wang, X. Yang, X. Zhang, Q. Wu, H. "High-performance symmetric supercapacitors based on carbon nanosheets framework with graphene hydrogel architecture derived from cellulose acetate." *J. Power Sources.* **337** (2017) 45–53.

Ansari, S.A. Cho, M.H. "Growth of three-dimensional flower-like SnS_2 on g-C_3N_4 sheets as an efficient visible-light photocatalyst, photoelectrode, and electrochemical supercapacitance material", *Sustainable Energy Fuels* **1** (2017) 510–519

Arora, N. Sharma, N. N. "Arc discharge synthesis of carbon nanotubes: comprehensive review." *Diam Relat Mater.,* **50** (2014) 135–150.

Asmare, E. "Current trend of water hyacinth expansion and its consequence on the fisheries around north eastern part of lake tana", *Ethiopia J. Biodivers. Endanger Species*. **5** (2017) 1000189–1000193.

Auwarter, W. Ecija, D. Klappenberger, F. Barth, J. V. "Porphyrins at interfaces." *Nat. Chem.* **7** (2015) 105–120.

Awasthi, K. Kumar, R. Raghubanshi, H. Awasthi, S. Pandey, R. Singh, D. Yadav T. P. "Synthesis of nano-carbon (nanotubes, nanofibres, graphene) materials." *Bull. Mater. Sci.,* **34** (2011) 607.

Azad, U.P. Ghosh, S. Verma, C.J. Singh, A.K. Singh, A.K. Prakash, R. "Study of the capacitive behavior of MOF Derived NanocarbonPolyhedra", *Chem. Sel.* **3** (2018) 6107-6111.

Banwell, C.N. McCash, E.N. "Tata McGraw Hill Publishing Company Limited (UK). Fundamentals of molecular spectroscopy." 4th edition, (1994).

Bard, A. J. Faulkner, L. R. "Electrochemical methods: fundamentals and applications." New York: Wiley, (2001) 2nd ed.

Bera, R.; Mondal, S.; Mondal, B.; Jana, B.; Nayak, S. K.; Patra, A. "Graphene-porphyrin Nanorod Composites for Solar Light Harveting." *ACS Sustain. Chem. Eng.* **4** (2016) 1562–1568.

Bhattacharya, P. Dhibar, S. Hatui, G. Mandal, A. Das, T. Das, C.K. "Graphene decorated with hexagonal shaped M-type ferrite and polyaniline wrapper: a potentialcandidate for electromagnetic wave absorbing andenergy storage device applications", *RSC Adv.* **4** (2014) 17039-17053.

Bi, Z. Kong, Q. Cao, Y. Sun, G. Su, F. Wei, X. Li, X. Ahmad, A. Xie, L. Chen, C.M. "Biomass-derived porous carbon materials with different dimensions for supercapacitor electrodes: a review." *J. Mater. Chem. A.,* **7 (**2019) 16028–16045.

Biswal, M. Banerjee, A. Deo, M. Ogale, S. "From dead leaves to high energy density Supercapacitors." *Energy Environ. Sci.* **6** (2013) 1249–1259.

Blomquist, N. Wells, T. Andres, B. Bäckström, J. Forsberg, S. Olin, H. "Metal-free supercapacitor with aqueous electrolyte and low-cost carbon materials." *Sci. Rep.* **7** (2016) 39836

Borghetti, P. Santo, G.D. Cudia, C.C. Fanetti, M. Sangaletti, L. Gpldpni, A. "Adsorption geometry, conformation, and electronic structure of 2H-octaethylporphyrin on Ag(III) and Fe metalated in ultra high vacuum." *J. Chem. Phys.* **138** (2013) 144702.

Buliyaminu, I.A. Abdul Aziz, M. Shaheen Shah, S. Mohamedkhair, A.K. Yamani, Z.H. "Preparation of nano-Co_3O_4-coated Albizia procera-derived carbon by direct thermal decomposition method for electrochemical water oxidation", *Arabian J. Chem.* **13** (2020) 4785–4796.

Cai, Z. J.; Zhang, Q.; Song, X. Y. "Improved Electrochemical Performance of Polyindole/Carbon Nanotubes Composite as Electrode Material for Supercapacitors." *Electron. Mater. Lett.* **12** (2016) 830–840.

Cao, X. Shi, Y. Shi, W. Lu, G. Huang, X. Yan, Q. Zhang, Q. Zhang, H. "Preparation of Novel 3D Graphene Networks for Supercapacitor Applications." *Small* ., **7(22)** (2011) 3163-3168.

Capacitors." *Carbon.,* **39** (6) (2001) 937-950

Carballo, R. Rinaldi, A.L. Rezzano, I.N. "Electrochemical study of azide bridged heterobimetallic films of porphyrins: application as an impedimetric sensor." *Electrochim. Acta*., **222** (2016) 1700–1708.

Cazoria-Amoros, D. "Grand challenges in carbon-based materials research." Frontiers in Materials., 1 (2014) https://doi.org/10.3389/fmats.2014.00006

Chang, B.-Y. Park, S.-M. "Electrochemical Impedance Spectroscopy" *Annu. Rev. Anal. Chem.* **3** (2010) 207–229...

Chang, F. Xie, Y. Li, C. Chen, J. Luo, J. Hu, X. "A facile modification of g-C_3N_4 with enhanced photocatalytic activity for degradation of methylene blue", *Appl. Surf. Sci.* **280** (2013) 280, 967–974.

Chang, J. Gao, Z. Wang, X. Wu, D. Xu, F. Wang, X. "Activated porous carbon prepared from paulownia flower for high performance supercapacitor electrodes." *Electrochim. Acta.,* **157** (2015) 290–298.

Chauhan, N.P.S.; Mozafari, M.; Chundawat, N.S.; Meghwal, K.; Ameta, R.; Ameta, S.C. High-performance supercapacitors based on polyaniline–graphene

nanocomposites: Some approaches, challenges and opportunities. *J. Ind. Eng. Chem.* **36** (2016) 13–29.

Chen, L. F. Huang, Z. H. Liang, H. W. Yao, W. T. Yu, Z. Y. Yu, S. H. "Flexible all-solid-state high-power supercapacitor fabricated with nitrogen-doped carbon nanofiber electrode material derived from bacterial cellulose." *Energy Environ. Sci.,* **6** (2013) 3331–3338.

Chen, L. F. Zhang, Y.D. Liang, H.W. Kong, M. Guan, Q.f. Chen, P. Wu, Z.Y. Yu, S.H. "Synthesis of nitrogen-doped porous carbon nanofibers as an efficient electrode material for Supercapacitors." *ACS Nano*., **6** (2012) 7092–7102.

Chen, L. Ji, T. Mu, L. Zhu, J. "Cotton fabric derived hierarchically porous carbon and nitrogen doping for sustainable capacitor electrode." *Carbon.,* **111** (2016) 839–848.

Chen, Q. Zhao, Y. Huang, X. Chen, N. Qu, L. "Three-dimensional graphitic carbon nitride functionalized graphene-based high-performance Supercapacitors", *J. Mater. Chem. A* **3** (2015) 6761-6766

Chen, W. Zhang, H. Huang, Y. Wang, W. "A fish scale based hierarchical lamellar porous carbon material obtained using a natural template for high performance electrochemical capacitors." *J. Mater. Chem.,* **20 (**2010) 4773–4775.

Chen, X. Zhu, X. Xiao, Y. Yang, X. "PEDOT/g-C_3N_4 binary electrode material for Supercapacitors." *J. Electroanal. Chem.* **743** (2015) 99–104.

Chen, Z. Liao, W. Ni, X. "Spherical polypyrrole nanoparticles growing on the reduced graphene oxide-coated carbon cloth for high performance and flexible all-solid-state supercapacitors." *Chem. Eng. J.,* **327 (**2017) 1198-1207

Cheng, Z. Qiu, Y. Tan, G. Chang, X. Luo, Q. Cui, L. "Synthesis of a Novel Mn(II)-porphyrins polycondensation polymer and its application as pseudo-capacitor electrode material." *J. Organometallic Chemistry.,* **900** (2019) 120940.

Chidembo, A.T. Ozoemena, K.I. Agboola, B.O. Gupta, V. Wildgoose, G.G. Compton, R.G. "Nickel(ii) tetra-aminophthalocyanine modified MWCNTs as potential nanocomposite materials for the development of Supercapacitors" *Energy Environ. Sci.,* **3** (2010) 228-236.

Cho, S. Kwon, O.S. You, S.A. Jang, J. "Shape-controlled polyanilinechemiresistors for high-performance DMMP sensors: effect of morphologies and charge-transport properties", *J. Mater. Chem. A.* **1** (2013) 5679–5688.

Choudhary, R. B. Majumder, M. Thakur, A. K. "Two-Dimensional Exfoliated MoS_2 Flakes Integrated with Polyindole for Supercapacitor Application." *ChemistrySelect.,* **4** (2019) 6906 –6912.

Choudhury, P. Dinda, S. Das, P.K. "Fabrication of soft-nanocomposites from functional molecules with diversified applications." *Soft Matter*., **16 (**2020) 27-53.

Chulkin, P. Data, P. "Electrochemical Impedance Spectroscopy as a Tool for Electrochemical Rate Constant Estimation" *J. Vis. Exp*.**140** (2018) 56611-56619.

Chulliyote, R. , Hareendrakrishnakumar, H. Raja, M. Gladis, J. M. Stephan, A.M. "Enhanced cyclability using polyindole modified cathode material for lithium sulphur battery" *Sustainable Energy Fuels* **1** (2017) 1774-1781

Clement, T. E.; Nurco, D. J.; Smith, K. M.; **"S**ynthesis and characterization of a series of Monometallo, bimetallo, and heterobimetallo 1,2 ethene linked cofacial bisporphyrin." *Inorg. Chem.* **37** (1998) 1150–1160.

Coros, M. Pogacean, F. Magerusan, L. Rosu, M.C. Porav, A.S. Socaci, C. Bende, A. Sv. Staden, R.I. Pruneanu, S. "Graphene-porphyrin composite synthesis through graphite exfoliation: the electrochemical sensing of catechol." *Sens. Actuators B.,* **256** (2018) 665–673.

Deb Nath, N.C. Shah, S.S. Qasem, M.A.A. Zahir, M.H. Aziz, M.A. "Defective carbon nanosheets derived from syzygium cumini leaves for electrochemical energy storage", *ChemistrySelect* **4** (2019) 9079–9083.

Deng, D. et al. Cerium oxide nanoparticles/multi-wall carbon nanotubes composites: Facile synthesis and electrochemical performances as supercapacitor electrode materials. *Physica E* **86** (2017) 284–291

Dennany, L. Innis, P.C. McGovern, S.T. Wallace, G.G. Forster R.J. "Electronic interaction within composite of polyanilines form under acidic and alkaline conditions. Conductivity, ESR, Raman, UV Vis. and Fluorescence studies", *Phys. Chem. Chem. Phys*. **13** (2011) 3303-3310.

Deyab, M.A. Mele, G. "PANI@Co-Porphyrins composite for the construction of supercapacitors"*J. Energy Storge* **26** (2019) 101013.

Deyab, M.A. Mele, G. "Stainless steel bipolar plate coated with polyaniline/Zn-Porphyrin composites coatings for proton exchange membrane fuel cell" *Sci. Rep.* **10** (2020) 3277.

Dhand, C.; Das, M.; Datta, M.; Malhotra, B. D. Recent Advances in Polyaniline Based Biosensors. *Biosen. Bioelectron.* **26 (**2011) 2811–2821.

Divyashree A , Manaf , S.A. B. A. Yallappa, S , Chaitra K , Kathyayini N , Hegde, G. "Low cost, high performance supercapacitor electrode using coconut wastes: eco-friendly approach." *J. Energy Chem.,* 25 (5) (2016) 880-887.

Dolphin, D. (ed.) "The porphyrins" *Academic Press*, *New York*, **1** (1978) 389–483.

Dong, B. Li, M. Chen, S. Ding, D. Wei, W. Gao, G. Ding, S. "Formation of g-C_3N_4@$Ni(OH)_2$ honeycomb nanostructure and asymmetric supercapacitor with high energy and power density", *ACS Appl. Mater. Interfaces* **9** (2017) 17890−17896.

Dong, X.C. Xu, H. Wang, X.W. Huang, Y.X. Chan-Park, M. B. Zhang, H. Wang, L.H. Huang, W. Chen, P. "3D Graphene-Cobalt Oxide Electrode for High-Performance Supercapacitor and Enzymeless Glucose Detection." *ACS Nano.,* **6** (2012) 3206–3213

Du, W. Wang, X. Ju, X. Xu, K. Gao, M. Zhang, X. "Carbonized enteromorphaprolifera with porous architecture and its polyaniline composites as high-performance electrode materials for Supercapacitors", *J. Electroanal. Chem*. **802** (2017) 15–21.

Dubal, D. P. Chodankar, N. R. Kim, D. H. Gomez-Romero, P. "Towards flexible solid-state supercapacitors for smart and wearable electronics." *Chem. Soc. Rev.,* **47** (2018) 2065-2129.

Dubey, P. Kumar, A. Prakash, R. "Non-covalent functionalization of graphene oxide by polyindole and subsequent incorporation of Ag nanoparticles for electrochemical applications."*Appl. Surf. Sci.* **355 (**2015) 262–267.

Eklund, P. C. Rao, A. M. Zhou, P. Wang, Y. Holden, J. M. "Photochemical transformation of C_{60} and C_{70} films." *Thin Solid Films.,* **257** (2) (1995) 185–203.

Elnaggar, E.M. Kabel, K.I. Farag, A.A. Gamal, A.G.A. "Comparative study on doping of polyaniline with graphene and multi-walled carbon nanotubes*", J.NanostructChem*. **7** (2017) 75–8.

Engelmann, F.M. Losco, P. Winnischofer, H. Araki, K. Toma, H.E. "Synthesis, electrochemistry, spectroscopy and photophysical properties of a series of meso-phenylpyridylporphyrins with one to four pyridyl rings coordinated to $[Ru(bipy)_2Cl]^+$ groups." *J. Porphyr. Phthalocyanines*., **6** (2002) 33-42.

Eskusson, J.; Rauwel, P.; Nerut, J.; Janes, A. "A hybrid capacitor based on Fe_3O_4-graphene nanocomposite/few-layer graphene in different aqueous electrolytes". *J. Electrochem. Soc.,* **163** (2016) 2768–2775

Feringa, L. B.; Jager F. W.; Lange, B. D. "Organic Materials for Reversible Optical Data Storage." *Tetrahedron* **49** (1993) 8267–8310.

Fong, K.D. Wang, T. Smoukov, S.K. "Multidimensional performance optimization of conducting polymer-based supercapacitor electrodes", *Sustainable Energy Fuels.* **1** (2017) 1857–1874.

Forrest, S. R. "The path to ubiquitous and low-cost organic electronic appliances on plastic." *Nature,* **428** (2004) 911–918.

Frackowiak, E. "Carbon materials for supercapacitor application." *Phys. Chem. Chem. Phys.,* **9 (**2007) 1774–1785.

Frackowiak, E. Beguin, F. "Carbon materials for the electrochemical storage of energy in capacitors." *Carbon,* **39** (6) (2001) 937-950.

Freeman, R. Girsh, J. Willner I. "Nucleic Acid/Quantum Dots (QDs) Hybrid Systems for Optical and Photoelectrochemical Sensing." *ACS Appl. Mater. Interfaces*., **5** (2013) 2815–2834

Gao, M. Tong, R. Huang, H. Kang, Y. Luo, Q. Huang, Y. Chu, P.K. "Activation of graphitic carbon nitride by surface discharge plasma treatment for enhanced photocatalysis", *Vacuum* **159** (2019) 235–238

Gao, P. Chen, Z. Zhao-Karger, Z. Mueller, J.E. Jung, C. Klyatskaya, S. Diemant, T. Fuhr, O. Jacob, T. Behm, R.J. Ruben, M. Fichtner, M. Z. "A Porphyrin Complex as a Self-Conditioned Electrode Material for High-Performance Energy Storage." *Angew. Chem., Int. Ed.,* **56**(35) (2017) 10341-10346.

Geim, A. K., Novoselov, K. S. "The rise of graphene." *Nat. Mater*., 2007, 6, 183–191.

Gervaldo, M. Liddell, P. A. Kodis, G. Brennan, B. J. Johnson, C. R. Bridgewater, J. W. Moore, A. L. Moore T. A. Gust, D. "A photo- and electrochemically-active porphyrin–fullerene dyad electropolymer." *Photochem. Photobiol. Sci.*, **9** (2010) 890-900.

Ghosh, S. Maiyalagan, T. Basu, R. N. "Nanostructured Conducting Polymers for Energy Applications: Towards a Sustainable Platform" *Nanoscale,* **8** (2016) 6921-6947.

Goswami, S. Raghupathy Dillip, G. Nandy, S. Narayan Banerjee, A. Pimentel, A. Joo, S.W. Martins, R. Fortunato E. "Biowaste-derived carbon black applied to polyaniline-based high-performance supercapacitor microelectrodes: Sustainable materials for renewable energy applications." *Electrochimica Acta* **316** (2019) 202-218.

Gou, G. Huang, F. Jiang, M. Li, J. Zhou, Z. "Hierarchical porous carbon electrode materials for supercapacitor developed from wheat straw cellulosic foam", *Renew. Energy* **149** (2020), 208-216.

Greczynski, G. Hultman, L. "X-ray photoelectron spectroscopy: Towards reliable binding energy referencing." *Progress in Materials Science* **107** (2020) 10059.

Guo, W. Wang, J. Fan, C. Chen, Z. Liu, P. Zhu, D. Xu, Z. Pang, L. Li, T. "Synthesis of carbon self-repairing porous g-C_3N_4 nanosheets/ $NiCo_2S_4$ nanoparticles hybrid composite as high-performance electrode materials for Supercapacitors." *Electrochim. Acta* **253** (2017) 68–77

Gupta, B. Prakash, R. "Processible polyacid doped polyaniline composites: Application for charge storage devices", *Mater. Sci. Eng. C.* **29** (2009) 1746–1751.

Gupta, B. Prakash, R. "Synthesis of functionalized conducting polymer ''polyanthranilic acid'' using various oxidizing agents and formation of composites with PVC." *Polym. Adv. Technol.*, 22 (2011) 1982–1988.

Gupta, B.; Chauhan D. S.; Prakash, R.; "Controlled morphology of conducting polymers: Formation of nanorods and microspheres of polyindole." *Mater. Chem. Phys.* **120** (2010) 625–630.

Haffner-Staton, E. Balahmar, N. Mokaya, R. "High yield and high packing density porous carbon for unprecedented CO_2 capture from the first attempt at activation of air-carbonized biomass", *J. Mater. Chem. A.* **4** (2016) 13324–13335.

Hao, P. Zhao, Z. H. Tian, J. Li, H. D. Sang, Y. H. Yu, G. W. Cai, H. Q. Liu, H. Wong, C. P. Umar, A. "Hierarchical porous carbon aerogel derived from bagasse for high performance supercapacitor electrode." *Nanoscale.*, **6** (2014) 12120–12129.

Harutyunyan, A. R. Pradhan, B. K. Kim, U. J. Chen, G. Eklund, P. C. "CVD synthesis of single wall carbon nanotubes." *Nano Letters.*, **2** (5) (2002) 525–530.

Hassanien, R. Wright, N.G. Houlton A., Horrocks B.R. "Preparation and characterization of conductive and photoluminescent DNA-templated polyindole nanowires." *ACS Nano*, **4** (2010)

Hirst, E.A. Taylor, A. Mokaya, R. "A simple flash carbonization route for conversion of biomass to porous carbons with high CO_2 storage capacity", *J. Mater. Chem. A.* **6** (2018) 12393–12403.

Hoang, V.C. Dinh, K.N. Gomes, V.G. "Hybrid Ni/NiO composite with N-doped activated carbon from wastecauliflower leaves: A sustainable bifunctional electrocatalyst for efficient water splitting", *Carbon*. **157** (2020) 515-524.

Hong, X. Fu, J. Liu, Y. Li, S. Wang, X. Dong, W. Yang S. "Recent Progress on Graphene/Polyaniline Composites for High-performance Supercapacitors" *Materials* **12** (2019) 1451-1478

Hu, J.S. Ji, H.X. Wan, L.J. "Metal Octaethylporphyrin Nanowire Array and Network toward Electric/Photoelectric Device." *J. Phys. Chem. C,* **113** (2009) 16259–16265.

Huang, J. Wu, J. Dai, F. Li, C. M. "3D honeycomb-like carbon foam synthesized with biomass buckwheat flour for high-performance supercapacitor electrodes." *Chem. Commun.,* **55** (2019) 9168-9171

Huang, J. Wang, J. Wang, C. Zhang, H. Lu, C. Wang, J. "Hierarchical porous graphene carbon-cased Supercapacitors." *Chem. Mater.* **27** (2015) 2107−2113

Huang, W., Zhang, H., Huang, Y., Wang, W. Wei, S. "Hierarchical porous carbon obtained from animal bone and evaluation in electric double-layer capacitors." *Carbon.,* **49** (2011) 838–843.

Iijima, S. "Helical microtubules of graphitic carbon." *Nature.,* **354** (1991) 56-58.

Iijima, S. "Single-shell carbon nanotubes of 1-nm diameter." *Nature.,* **363** (1993) 603-605.

Inala, I.G. Holmes, S.M. Yagmur, E. Ermumcu, N. Banford, A. Aktas, Z. "The supercapacitor performance of hierarchical porous activated carbon electrodes synthesized from demineralised (waste) cumin plant by microwave pretreatment." *J. Ind. Eng. Chem.* **61** (2018) 124–132.

Ismanto, A.E. Wang, S. Soetaredjo, F.E. Ismadji, S. "Preparation of capacitor's electrode from cassava peel waste." *Bioresource Technology*. **101** (2010) 3534–3540.

Itagaki, Y.; Deki, K.; Nakashima, S.; Sadaoka, Y. "Toxic gas detection using porphyrin dispersed polymer composites." *Sens. Actuators B,* **108** (1) (2005)393–397.

Jahan, M.; Bao Q,; Loh K, "Electrocatalytically Active Graphene−Porphyrin MOF Composite for Oxygen Reduction Reaction." *J. Am. Chem. Soc.* **134** (15) (2012) 6707–6713.

Jaramillo, J. Alvarez, P.M. Gomez-Serrano, V. "Oxidation of activated carbon by dry and wet methods: Surface chemistry and textural modifications", *Fuel process technology*, **91** (2010) 1768-1775.

Ji, H.; Hu, J.; Wan, L.; "ZnOEP based phototransistor signal amplification and light-controlled switch." *Chem. Commun.* (2008) 2653–2655, http://dx.doi.org/10.1039/b805204b.

Jiang, D. Xu, Q. Meng, S. Xia, C. Chen, M. "Construction of cobalt sulfide/ graphitic carbon nitride hybrid nanosheet composites for high performance supercapacitor electrodes", *J. Alloys Compd.* **706** (2017) 41–47

Jiang, J. Zou, J. Wee, A.T. Zhang, W. "Use of Single-Layer g-C_3N_4/Ag hybrids for surface-enhanced raman scattering (SERS)", *Sci. Rep.* **6** (2016) 34599

Jiang, L. Nelson, G.W. Han, S.O. Kim, H. Sim, I.N. Foord, J.S. "Natural cellulose materials for supercapacitors", *Electrochim. Acta*. **192** (2016) 251–258.

Jiang, T. Wan, P. Ren, Z. Yan, S. "Anisotropic Polyaniline/SWCNT Composite Films Prepared by in Situ Electropolymerization on Highly Oriented Polyethylene for High efficiency Ammonia Sensor", *ACS Appl. Mater. Interfaces*. **11** (2019) 38169−38176

Jin, H. Wang, X. Gu, Z. Polin, J.Carbon materials from high ash biochar for supercapacitor and improvement of capacitance with HNO_3 surface oxidation" Journal of Power Sources 236 (2013) 285-292

Jisha, M. R. et al. "Electrochemical characterization of supercapacitors based on carbons derived from coffee shells." *Mater. Chem. Phys.,* **115** (2009) 33–39.

Joshi, L. Prakash, R. "One-pot synthesis of Polyindole–Au nanocomposite and its nanoscale electrical properties." *Mater. Lett.,* **65** (2011) 3016-3019.

Jung, S.H. Myung, Y. Kim, B.N. Kim, I.G. You, I.K. Kim, T.Y. "Activated biomass-derived graphene-based carbons for supercapacitors with high energy and power density", *Sci. Rep.* **8** (2018) 1915–1923.

Kavil, J. Anjana, P.M.Periyat, P. Rakhi, R.B. "One-pot synthesis of g-C3N4/MnO_2, g-C3N4/SnO2 hybrid nanocomposites for Supercapacitor applications." *Sustain. Energy Fuels.,* **2** (2018) 2244-2251.

Khalili, S. Khoshandam, B. Jahanshahi, M. "Synthesis of activated carbon/polyanilinenanocomposites for enhanced CO2 adsorption." *RSC Adv.* **6** (2016) 35692–35704.

Kim, J. Kim, M. Cho, S. Yoon, C.M. Lee, C. Ryu, J. Jang J. "Multidimensional Polyaniline/Reduced Graphene Oxide/Silica Nanocomposite for Efficient Supercapacitor Electrodes." *Chem.Nano.Mat.* **2** (2016) 236 – 241.

Kotal, M. Bhowmick, A.K. "Multifunctional Hybrid Materials Based on Carbon Nanotube Chemically Bonded to Reduced Graphene Oxide." *J. Phys. Chem. C.,* **117** (2013) 25865−25875

Kulkarni, S.B. Patil, U.M. Shackery, I. Sohn, J.S. Lee, S. Park, B. Jun, S. "High-performance supercapacitor electrode based on a polyaniline nanofibers/3D graphene framework as an efficient charge transporter", *J. Mater. Chem. A* **2** (2014) 4989–4998.

Kumar, D. Sharma, R.C. "Advances in conductive polymers*" Eur. Polym. J.* **34** (8) (1998) 1053-1060.

Kumar, A. Jena, H.M. "Preparation and characterization of high surface area activated carbon from Fox nut (Euryale ferox) shell by chemical activation with H_3PO_4", *Results in Physics.* **6** (2016) 651–658.

Kumar, A. Joshi, L. Prakash, R Electrocatalytic Performance of Interfacially Synthesized Au-Polyindole Composite toward Formic Acid Oxidation." Ind. Eng. Chem. Res., **52** (27) (2013) 9374–9380.

Kumar, A. Pandey, A. C. Prakash R. "Electro-oxidation of formic acid using polyindole-SnO2 nanocomposite." *Catal. Sci. Technol.,* **2 (**2012) 2533-2538.

Kumar, A. Prakash, R. "Synthesis of nano ground nutshell-like polyindole by supramolecular assembled salts of ss-DNA assisted chloroauric acid", *Chem. Phys. Lett.* **511** (2011) 77-81.

Kumar, A.; Joshi,L.; Prakash, R. "Electrocatalytic Performance of Interfacially Synthesized Au-Polyindole Composite toward Formic Acid Oxidation." *Ind. Eng. Chem. Res.* **52** (2013) 9374–9938.

Kumar, L.; Gupta, R.; Thakar, D.; Vibhu, V.; Annapoorni, S. "A New Route to Glucose Sensing Based on Surface Plasmon Resonance Using Polyindole." *Plasmonics,* **8** (2013) 487-494, Plasmonics 8 (2013) 487–494.

Kumar, M.S. Yasoda, K.Y. Batabyal, S.K. Kothurkar, N.K. "Carbon Polyaniline nanocomposites as supercapacitor materials", *Mater. Res. Express.* **5** (2018) 045505-045512.

Kumar, N. A. Choi, H.J. Shin,Y. R. Chang, D.W. Dai, L. Baek, J.B. "Polyaniline-Grafted Reduced Graphene Oxide for Efficient Electrochemical Supercapacitors" *ACS Nano* **2** (2012) 1715–1723

Kumar, N.A. Gaddam, R.R. Suresh, M. Varanasi, S.R. Yang, D. Bhatia, S.K. Zhao, X.S. "Porphyrine-graphene oxide frameworks for long life sodium ion batteries." *J. Mater. Chem.,* **5** (2017) 13204-13211.

Lebedeva, M.V. Ayupov, A.B. Yeletsky, P.M. Parmon, V.N. "Rice husk derived activated Carbon/Polyaniline composites as active materials for supercapacitors" *Int. J. Electrochem. Sci*. **13** (2018) 3674 – 3690

Lee, D.G. Kim, B.H. "MnO2 decorated on electrospun carbon nanofiber/ graphene composites as supercapacitor electrode materials." *Synth. Met*., **219** (2016) 115-123.

Li, D. Huang, J.Kaner, R.B. "Polyaniline Nanofibers: A Unique Polymer Nanostructure for Versatile Applications" *Acc. Chem. Res.* **42** (1) (2009) 135–145

Li, F. Dong, Y. Dai, Q. Nguyen, T.T. Guo, M. "Novel freestanding core-shell nanofibrillated cellulose/ polypyrrole/tubulargraphitic carbon nitride compositefilm for supercapacitors electrodes", *Vacuum* **161** (2019) 283–290

Li, J.; Peng, H. D.; Lu Y.;Wu H. D.; Pan G. "Shape-controlled synthesis of platinum octaethylporphyrin crystalline aggregates modulated by versatile ionic liquids." *RSC Adv*. **6** (2016) 35654–35657.

Li, T. X. Kuwana, K. Saito, K. Zhang, H. Chen, Z. "Temperature and carbon source effects on methane-air fame synthesis of CNTs." *Proceedings of the Combustion Institute.,* **32** (2009) 1855–1861.

Li, X. Xing, W. Zhuo, S. Zhou, J. Li, F. Qiao, S. Z. Lu, G. Q. "Preparation of capacitor's electrode from sunflower seed shell." *BioresourceTechnol.,* **102** (2011) 1118–1123.

Li, X. Xiong, J. Gao, X. Huang, J. Feng, Z. Chen, Z. Zhu, Y. "Recent advances in 3D g-C_3N_4 composite photocatalysts for photocatalytic water splitting, degradation of pollutants and CO_2 reduction", *J. Alloys Compd.* **802** (2019) 196–209

Liang, Q. Ye, L. Xu, Z.H. Huang, Q. Bai, Y. Kang, F. Yang, Q.H. "Honeycomb-like porous carbon derived from pomelo peel for use in high-performance supercapacitors", *Nanoscale* **6** (2014) 13831–13837.

Lin, R. Li, Z. Amaiem, D.I.A.E. Zhang, B. Brett, D.J.L. He, G. Parkin, I.P. "A general method for boosting the supercapacitor performance of graphitic carbon nitride/graphene hybrids", *J. Mater. Chem. A* **5** (2017) 25545–25554.

Lisdat, F. Schäfer, D. "The use of electrochemical impedance spectroscopy for biosensing." *Anal Bioanal Chem,* **391** (2008) 1555–1567.

Liu, J. Zhang, T. Wang, Z. Dawson, G. Chen, W. "Simple pyrolysis of urea into graphitic carbon nitride with recyclable adsorption and photocatalytic activity", *J. Mater Chem.* **21** (2011) 14398-14401

Liu, R., Wu, D., Feng, X. & Müllen, K. Nitrogen-Doped Ordered Mesoporous Graphitic Arrays with High Electrocatalytic Activity for Oxygen Reduction." *Angew. Chem. Int. Ed*., **49** (2010) 2565–2569.

Liu, Y. Deng, R. Wang, Z. Liu, H. "Carboxyl-functionalized graphene oxide/polyaniline composite as a promising supercapacitor material", ***J. Mater. Chem.*** **22 (**2012) 13619-13624.

Liu, Y. Shi, Z. Gao, Y. An, W. Cao, Z. Liu, J. "Biomass-swelling assisted synthesis of hierarchical porous carbon fibers for supercapacitor electrodes", *ACS Appl. Mater. Interfaces* **8** (2016) 28283−28290.

Lu, X. Yu, M. Wang, G. Tong, Y. Li, Y. "Flexible solid-state supercapacitors: design, fabrication and applications." ***Energy Environ. Sci.,*** **7** (2014) 2160-2181

Lu, Y. Wang, F. Yang, B. Zhang, Q. Pan, G. "Ionic liquid-assisted synthesis of ultralong nanowires of zinc octaethylporphyrin and their photoresponse." *J. Mater. Chem. C* **3** (2015) 3379–3383.

Luo, Y. Yan, Y. Zheng, S. Xue, H. Pang, H. "Graphitic carbon nitride based materials for electrochemical energy storage." *J. Mater. Chem. A* **7** (2019) 901–924

Luo, Y., Yang, T., Zhao, Q. & Zhang, M. CeO2/CNTs hybrid with high performance as electrode materials for supercapacitor." *J. Alloys Compd.* **729** (2017) 64–70

Lyu, L.; Chai, H.; Seong, K.-D.; Lee, C.; Kang, J.; Zhang, W.; Piao, Y. "Yeast-derived N-doped carbon microsphere/polyaniline composites as high performance pseudocapacitive electrodes." *Electrochim. Acta* **291**, (2018) 256–266.

Ma, T. Pan, Z. Miao, L. Chen, C. Han, M. Shang, Z. Chen, J. "Porphyrin-Based Symmetric Redox-Flow Batteries Towards Cold-Climate Energy Storage." *Angew. Chem., Int. Ed.,* **57** (2018) 3158.

Ma, W. Chen, S. Yang, S. Chen, W. Weng, W. Zhu, M. "Bottom-Up Fabrication of Activated Carbon Fiber for All-Solid-State Supercapacitor with Excellent Electrochemical Performance", *ACS Appl. Mater. Interfaces.* **8** (2016) 14622−14627.

MacDiarmid, A.G. "Synthetic metals; a novel role for organic polymers (Novel lecture)." *Angew. Chem. Int. Ed.* **40** (2001) 2581-2590.

Madhu, R. Sankar, K.V. Chen, S. M. Selvan, R. K. "Eco-friendly synthesis of activated carbon from dead mango leaves for the ultrahigh sensitive detection of toxic heavy metal ions and energy storage applications", *RSC Adv.* **4** (2014) 1225–1233.

Mahmood, A. Hu, J.Y. Xiao, B. Tang, A. Wang, X. Zhou, E. "Recent progress of porphyrin-based materials for organic solar cells." *J. Mater. Chem. A.,* **6** (2018) 16769-16796.

Mamardasvili, G.M. Mamardasvili, N.Z. Berezin, B.D. "Solubility of Alkylporphyrins." *Molecules* **5** (2000) 762–766.

Marcasuzaa, P. Reynaud, S. Grassl, B. homme, H.P. Desbrières, J. Trchovà, M. Donard, O.F.X. "Microwave synthesis: An alternative approach to synthesize conducting end-capped polymers"*Polymer* **52** (2011) 33-39.

Mayer, I. Toma, H.E. Araki, K. "Electrocatalysis on tetraruthenated nickel and cobalt porphyrins electrostatic assembled films." *J. Electroanal. Chem.,* **590** (2006) 111-119.

Meng, Q. Cai, K. Chen, Y. Chen, L. "Research progress on conducting polymer based supercapacitor electrode materials", *Nano Energy* **36** (2017) 268–285

Meng, Y. Huang, X. Lin, H. Zhang, P. Gao, P. Li, W. "Carbon-Based Nanomaterials as Sustainable Noble-Metal-Free Electrocatalysts." *Front. Chem.,* **7** (2019)759-768.

Mishra, R.; Gupta. S.; Kumar. A.; Prakash. R. "Morphology-controlled approach for bulk synthesis of conducting Poly(5-aminoindole)." *Mater. Chem. Phys.* **183** (2016) 606–614.

Mohan, D. C.U. Pittman Jr, Actvated carbon and low cast absorbent for ramidation of tri- and hexvalent chromium from water, J. Hazard. Mater. 137 (2006) 762–811.

Moreno-Castilla, C. Ferro-Garcia, M. A. Joly, J. P. Bautista-Toledo, I. Carrasco-Marin, F. Rivera-Utrilla, J. "Activated Carbon Surface Modifications by Nitric Acid, Hydrogen Peroxide, and Ammonium Peroxydisulfate Treatments" *Langmuir* **11 (**1996) 4386-4392

Moussa, M. Kady, M. F Zhao, Z. Majewski, P. Ma, J. "Recent progress and performance evaluation for polyaniline/graphene nanocomposites as supercapacitor electrodes." Nanotechnology., **27** (2016) 442001.

Munoz-Sandoval, E., Cortes-López, A. J., Flores-Gómez, B., Fajardo-Díaz, J. L., Sánchez-Salas, R., and López-Urías, F. "Carbon sponge-type nanostructures based on coaxial nitrogen-doped multiwalled carbon nanotubes grown by CVD using benzylamine as precursor." *Carbon.*, **115** (2017) 409–421.

Muzaffar, A. Ahamed, M. B. Deshmukh, K. Thirumalai, J. "A review on recent advances in hybrid supercapacitors: Design, fabrication and applications*." Renewable and Sustainable Energy Reviews.,* **101** (2019) 123–145.

Najib,S. Erdem, E. "Current progress achieved in novel materials for supercapacitors electrode: mini review." *Nanoscale Adv.* **1** (2019) 2817.

Nalwa, H. S. "Organic Materials for Third-Order Nonlinear Optics." *Adv. Mater.* **5** (1993) 341–358.

Nizakati, T. Seifalian A. Ten, A, and Seifalian, A.M. "Conducting polymers: Opportunities and challenges in biomedical applications." *Chem. Rev.,* **118** (2018) 6766-6843.

Noked, M. Avraham, E. Bohadana, Y. Soffer, A. Aurbach, D. "Development of Anion Stereoselective, Activated Carbon Molecular Sieve Electrodes Prepared by Chemical Vapor Deposition." *J. Phys. Chem. C.,* **113** (2009) 7316–7321.

Noked, M. Soffer A. Aurbach, D. "The electrochemistry of activated carbonaceous materials: past, present, and future." *J. Solid State Electrochem.,* **15** (2011) 1563–1578.

Notarianni, M. Liu, J. Vernon, K. Motta, N. "Synthesis and applicat-ions of carbon nanomaterials for energy generation and storage." *Beilstein J. Nanotechnol.,* **7** (2016) 149–196.

Nurco, D. J.;, Medforth C. J.; Forsyth, T. P.; Olmstead M. M.;, Smith, K.; "Conformational Flexibility in Dodecasubstituted Porphyrins." *J. Am. Chem. Soc*. **118** (1996) 10918–10919.

Oh, Y.J. Yoo, J.J. Kim, Y.I. Yoon, J.K. Yoon, H.N. Kim, J.H. Park, S.B. "Oxygen functional groups and electrochemical capacitive behavior of incompletely reduced graphene oxides as a thin-film electrode of supercapacitor", *ElectrochimicaActa* **116** (2014) 118–128.

Paine, J.B. Kirshner, W.B. Moskowitz, D.W. Dolphin, D. "An improved synthesis of octaethyl-porphyrin." *J. Org. Chem.* **41** (1976) 3857–3860.

Palacin, T.; Khanh, H. Le; Jousselme, B.; Jegou, P.; Filoramo, A.; Ehli, C.; Guldi, D. M.; Campidelli, S. "Efficient Functionalization of Carbon Nanotubes with Porphyrin Dendrons via Click Chemistry." *J. Am. Chem. Soc.* **131** (42) (2009) 15394–15402.

Pandey R. K., Upadhyay, C. and Prakash, R., "Pressure dependent surface morphology and Raman studies of semicrystalline poly(indole-5-carboxylic acid) by the Langmuir–Blodgett technique." *RSC Adv.* **3** (2013) 15712–15718.

Pandey, R. K. Takashima, W. Nagamatsu, S. Dauendorffer, A. Kaneto, K. Prakash, R. "Macroscopic self ordering of solution processible poly(3,3‴−dialkylquaterthiophene) by floating film transfer method." *J. Appl. Phys.* **114** (2013) 054309.

Pandey, R.K. Mishra, R. Tiwari, P. Prakash, R. "Interface engineering for enhancement in performance of organic/inorganic hybrid heterojunction diode." *Org. Electron.* **45** (2017) 26–32.

Pandey, R.K. Singh, A.K. Prakash, R. "Enhancement in performance of polycarbazole-graphene nanocomposite Schottky diode." *AIP Adv.* **3** (2013) 122120-122129.

Pandey, R.K. Singh, A.K. Upadhyay, C. Prakash, R. "Molecular self ordering and charge transport in layer by layer deposited poly (3,3‴-dialkylquarterthiophene) films formed by Langmuir-Schaefer technique." *J. Appl. Phys.* **116** (2014) 094311–94318.

Pandey, R.K. Yadev, S.K. Upadhyay, C. Prakash, R. Mishra, H. "Surface plasmon coupled metal enhanced spectral and charge transport properties of poly(3,3‴-dialkylquarterthiophene) Langmuir Schaefer films." *Nanoscale,* **7** (2015) 6083–6092.

Pandit, B. Sankerpal, B.r. Koinkar, P.M "Novel chemical route for CeO2/MWCNTs composite towards highly bendable solid-state supercapacitor device" Sci. rep. 9 (2019) 5892-5905

Pandolfo, A. G. Hollenkamp, A. F. "Carbon properties and their role in Supercapacitors." *J. Power Sources.*, **157 (**2006) 11–27.

Paul, S. Amalraj, F. Radhakrishnan, S. "CO sensor based on polypyrrole functionalized with iron porphyrin" *Synth. Met.,* **159** (2009) 1019-1023

Peshoria, S. Narula A.K. "One-pot synthesis of porphyrin@polypyrrole hybrid and its application as an electrochemical sensor." *Mater. Sci. Eng. B.,* **229** (2018) 53–58.

Peter, T. H.; Klaus, M. A "Soluble Pentacene Precursor Synthesis, Solid-State Conversion into Pentacene and Application in a Field-Effect Transistor" Adv. Mater. 11 (1999) 480–483.

Phasuksom, K.; Sirivat, A. "Synthesis of nano-sized polyindole via emulsion polymerization and doping." *Synth. Met*. **219** (2016) 142–153.

Phiri, J. Dou, J. Vuorinen, T.Gane, P.A. C. Maloney, T. C. "Highly Porous Willow Wood-Derived Activated Carbon for High-Performance Supercapacitor Electrodes." *ACS Omega.,* **4 (**2019) 18108–18117.

Pinero, E.R. Cadek, M. Beguin, F. "Tuning carbon materials for supercapacitors by direct pyrolysis of seaweeds", Adv. Funct. Mater. 19 (2009) 1032–1039.

Piriya, V. S. A. Shende, R. C. Seshadhri, G. M. Ravindar, D. Biswas, S. Loganathan, Balasubramanian, S.T. S. Rambabu, K. Kamaraj, M. and Ramaprabhu, S. "Synergistic Role of Electrolyte and Binder for Enhanced Electrochemical Storage for Sodium-Ion Battery" *ACS Omega* **3 (**2018) 9945−9955

Pollak, E. Levy, N. Eliad, L. Salitra, G. Soffer A. Aurbach, D. "Review on Engineering and Characterization of Activated Carbon Electrodes for Electrochemical Double Layer Capacitors and Separation Processes." *Isr. J. Chem.,* **48** (2008) 287–303.

Poonam, Sharma, K. Arora, A. Tripathi, S.K. "Review of supercapacitors: Materials and devices."*J. Energy Storage*., **21** (2019) 801.

Protich, Z. Wong, P. Santhanam, K.S.V. "Composite of Zinc Using Graphene Quantum Dot Bath: A Prospective Material For Energy Storage." *ACS Sustain. Chem. Eng.* **4** (2016) 6177–6185.

Purkait,T. Singh, G. Singh, M. Kumar, D. Dey, R.S. "Large area few-layer graphene with scalable preparation from waste biomass for high-performance supercapacitor", *Sci. Rep*. **7** (2017) 15239–15253.

Qian, W. Sun, F. Xu, Y. Qiu, L. Liu, C. Wang, S. Yan, F. "Human hair-derived carbon flakes forelectrochemical Supercapacitors." *Energy Environ. Sci.,* **7** (2014) 379–386.

Qiu, Z. Wang, Y. S. Bi, X. Zhou, T. Zhou, J. Zhao, J. P. Miao, Z. C. Yi, W. M. Fu, P. Zhuo, S. "Biochar-based carbons with hierarchical micro-meso-macro porosity for high rate and long cycle life Supercapacitors." *J. Power Sources.*, **376** (2018) 82–90.

Raj, R. P.; Ragupathy, P.; Mohan, S. "Remarkable capacitive behavior of a Co3O4–polyindole composite as electrode material for supercapacitor applications." *J. Mater. Chem. A,* **3** (2015) 24338.

Rakhi, R. B. Chen, W. Alshareef , H. N. "Conducting polymer/carbon nanocoil composite electrodes for efficient Supercapacitors." *J. Mater. Chem.,* **22** (2012) 5177–5183.

Razmjooei, F. Singh, K. Kang, T.H. Chaudhari, N. Yuan, J. Yu, J.S. "Urine to highly porous heteroatomdoped carbons for supercapacitor: A value added journey for human waste." *Sci. Rep*. **7** (2017) 10910-10924.

Reddy, P.M.K. Mahammadunnisa, S. Ramaraju, B. Sreedhar, B. Subrahmanyam, C. "Low-cost adsorbents from bio-waste for the removal of dyes from aqueous solution", *Environ. Sci. Pollut. Res.* **20** (2013) 4111–4124.

Remy, E. Cahen, S. Malaman B. "Quantitative investigation of mineral impurities of HiPco SWCNT samples: Chemical mechanisms for purification and annealing treatments." *Carbon.,* **93** (2015) 933–944.

Ren, Z. Zhang, X. Li, H. Sun, X. Yan, S. "A facile way to fabricate anisotropic P3HT films by combining epitaxy and electrochemical deposition", *Chem. Commun.,* **52** (2016) 10972—10975

Romero, P.G. Sanchez, C "Functional Hybrid Materials." eds. Wiley–VCH, Weinheim, (2004)

Romero, P.G. Sanchez, C. "Hybrid materials. Functional properties. From Maya Blue to 21st century materials." *New J. Chem*., **29** (2005) 57–58

Rufford, T. E., Hulicova-Jurcakova, D., Fiset, E., Zhu, Z., and Lu, G. Q.. Double-layer capacitance of waste coffee ground activated carbons in an organic electrolyte. Electrochem. Commun., **11** (2009) 974–977.

Sanchez, C. Belleville, P. Popall, M. Nicole, L. "Applications of advanced hybrid organic–inorganic nanomaterials: from laboratory to market." *Chem. Soc. Rev.,* **40** (2011) 696-753

Sawangphruk, M. Srimuk, P. Chiochan, P. Krittayavathananon, A. Luanwuthi, S. Limtrakul, J. "High-Performance Supercapacitor of Manganese Oxide/Reduced Graphene Oxide Nanocomposite Coated on Flexible Carbon Fiber Paper." Carbon., **60** (2013) 109–116

Sawangphruk, M. Suksomboon, M. Kongsupornsak, K. Khuntilo, J. Srimuk, P. Sanguansak, Y. Klunbud, P. Suktha, P. Chiochan, P. "High-performance supercapacitors based on silver nanoparticle-polyanilene-graphene nanocomposites coated on flexible carbon fiber paper", *J. Mater. Chem. A*. **1** (2013) 9630-9636.

Scott, J.C.; Bozano L.d. "Nonvolatile Memory Elements Based on Organic Matetials." *Adv. Mater.* **19** (2007) 1452–1460.

Seifalian, N. T. Tan, A. Seifalian, A.M. "Conductive Polymers: Opportunities and Challenges in Biomedical Applications." *Chem. Rev.,* **118** (2018) 6766-6843.

Sevilla, M.; Mokaya, R., Energy Storage Applications of Activated Carbons: Supercapacitors and Hydrogen Storage. Energ. Environ. Sci. **7 (**2014) 1250-1280

Shah, S. S. Alfasanec, Md. A. Bakareb, I. A. Azizb, Md. A. Yamania, Z. H. "Polyaniline and heteroatoms–enriched carbon derived from Pithophora polymorpha composite for high performance supercapacitor" *J. Energy Storage* **30** (2020) 101562

Shah, S.S. Aziz, M.A. Mohamedkhair, A.K. Qasem, M.A.A. Hakeem, A.S. Nazal, M.K. Yamani, Z.H. "Preparation and characterization of manganese oxide nanoparticlescoated Albizia procera derived carbon for electrochemical water oxidation", *J. Mater. Sci.* **30** (2019) 16087–16098.

Shang, H. Lu, Y. Zhao, F. Chao, C. Zhang, B. Zhang, H. "Preparing high surface area porous carbon from biomass by carbonization in a molten salt medium", *RSC Adv.* **5** (2015) 75728–75734.

Sharma, V. Singh, I. Chandra, A. "Hollow nanostructures of metal oxides as next generation electrode materials for Supercapacitors", *Sci. Rep.* **8** (2018) No 1307

Shayeh, J.S. Salari, H. Daliri, A. Omidi, M. "Decorative reduced grapheme oxide/C_3N_4/Ag_2O/conductive polymer as a high performance material for electrochemical capacitors." *Appl. Surface Sci.* **447** (2018) 374–380.

Shehzad, K. Xu, Y. Gao, C. Duan, X. "Three-dimensional macro-structures of two-dimensional nanomaterials." *Chem. Soc. Rev.,* **45** (2016) 5541-5588.

Shi, F. Li, L. Wang, X.L. Gu, C.D. Tu, J.P. "Metal oxide/ hydroxide-based materials for Supercapacitors", *RSC Adv.* **4** (2014) 41910–41921

Shi, L. Zhang, J. Liu, H. Que, M. Cai, X. Tan, S. Huang, L. "Flower-like $Ni(OH)_2$ hybridized g-C_3N_4 for high-performance supercapacitor electrode material", *Mater. Lett.* **145** (2015) 150–153

Shin, J. Y. Yamada, T. Yoshikawa, H. Awaga, K. Shinokubo, H. "An Antiaromatic Electrode-Active Material Enabling High Capacity and Stable Performance of Rechargeable Batteries." *Angew. Chem., Int. Ed.,* **53** (2014) 3096.

Shuying, A.; Abdiryim, T.; Ding Y.; Nurulla, I.; "A comparative study of the microemulsion and interfacialpolymerization for polyindole." *Mater. Lett.* **62** (2008) 935–938.

Simon, P. Gogotsi, Y. "Materials for electrochemical capacitors", *Nat. Mater.* **7** (2008) 845−854.

Singh, A. Chandra, A. "Graphite oxide/polypyrrole composite electrodes for achieving high energy density supercapacitors"' *J. Appl. Electrochem.* **43** (2013) 773–782.

Singh, M.K. Kumar, A. Prakash, R. "Self-assembly of regioregular poly [2,5-bis(3-tetradecylthiophen-2-yl)thieno[3,2-b]thiophene], pBTTT-C14 in solvent-mixture and study of its junction behavior." *Org. Electron.* **50** (2017) 138–146.

Singh, M.K. Kumar, A. Prakash, R."Self-assembly of regioregular poly (3,3‴-didodecylquarterthiophene) in chloroform and study of its junction properties." *Mater. Sci. Eng. B* **217** (2017) 12–17.

Skook, D. A. Holler, F.J. Crouch, S.R. "Instrumental analysis." 6 th, Indian Reprint (2010)

Snook, G. A.; Kao, P.; Best, A. S. Conducting-Polymer-Based Supercapacitor Devices and Electrodes. J. Power Sources **196 (**2011) 1–12.

Song, J. Xu, L. Zhou, C. Xing, R. Dai, Q. Liu, D. Song, H. "Synthesis of Graphene Oxide Based CuO Nanoparticles Composite Electrode for Highly Enhanced Nonenzymatic Glucose Detection." *ACS Appl. Mater. Interfaces.,* **5** (2013) 12928–12934

Song, Y. Wang, H. Yan, L. "Cobalt-Porphyrin Modified Three-Dimensional Graphene Hydrogel Electrode for High Performance Asymmetric Supercapacitors" *World Scientific Publishing Company,***14** (2019) 1950062.

Srivastava, O. N. "Synthesis of nano-carbon (nanotubes, nanofibres, graphene) materials." *Bull. Mater.Sci.,* **34** (4) (2011) 607–614.

Staaf, L.G.H Lundgren, P. Enoksson, P. "Present and future supercapacitor carbon electrode materials for improved energy storage used in intelligent wireless sensor systems." *Nano Energy*., **9** (2014)128-141

Subota, T. Takenaka, K. Murakami, N. Ohno, T. "Performance of nitrogen and sulfur containing carbon material derived from thiourea and formaldehyde as electrochemical capacitor." *J. Power Sources.,* **196** (2011) 10455.

Subramaniyam, C.M. Srinivasan, N.R. Tai, Z. Liu, H.K. Dou, S.X. "Enhanced capacity and cycle life of nitrogen-doped activated charcoal anode for the lithium ion battery: a solvent-free approach", *RSC Adv.* **7** (2017)16505–16512.

Subramanya, B. Bhat, D.K. "Novel one-pot green synthesis of graphene in aqueous medium under microwave irradiation using a regenerative catalyst and the study of its electrochemical properties", *New J. Chem.* **39** (2015) 420-430.

Sun, D. Li, Y. Ren, Z. Bryce, M.R. Li, H. Yan, S. "Anisotropic highly conductive films of poly(3-methylthiophene) from epitaxial electropolymerization on oriented poly (vinylidene fluoride)", *Chem. Sci.,* **5** (2014) 3240-3245

Sun, M. Fang, Y. Kong, Y. Sun, S. Yu, Z. Umar. A. "Graphitic carbon nitride (g-C3N4) coated titanium oxide nanotube arrays with enhanced photo-electrochemical performance." *Dalton Trans*., **45** (2016) 12702–12709

Sun, Z.C. She, Y.B. Zhou, Y. Song, X.F. Li, K. "Synthesis, Characterization and Spectral Properties of Substituted Tetraphenylporphyrin Iron Chloride Complexes." *Molecules,* **16** (2011) 2960–2970.

Supriya, S. Vijayendra, Shetti, S. Hegde, G. "Conjugated systems of porphyrin–carbon nanoallotropes: a review." *New J. Chem.,* **42** (2018) 12328-12348.

Tahir, M. Cao, C. Butt, F.K. Idrees, F. Mahmood, N. Ali, Z. Aslam, I. Tanveer, M. Rizwana, M. Mahmooda, T. "Tubular graphitic-C_3N_4: a prospective material for energy storage and green photocatalysis." *J. Mater. Chem. A* **1** (2013) 13949–13955.

Tahir, M. Cao, C. Mahmood, N. Butt, F. K. Mahmood, A. Idrees, F. Hussain, S. Tanveer, M. Ali, Z. Aslam, I. "Multifunctional g‑C_3N_4 nanofibers: a template-free fabrication and enhanced optical, electrochemical, and photocatalyst properties." *ACS Appl. Mater. Interfaces.,* **6** (2014) 1258−1265.

Tahir, M. Mahmood, N. Zhu, J. Mahmood, A. Butt, F.K. Rizwan, S. Aslam, I. Tanveer, M. Idrees, F. Shakir, I. Cao, C. Hou, Y. "One Dimensional Graphitic Carbon Nitrides as Effective Metal-Free Oxygen Reduction Catalysts." *Sci.Rep*., **5** (2015) 12389.

Tamilselvi, R. Ramesh, M. Lekshmi, G. S. Bazaka, O. Levchenko, I. Bazaka, K. Mandhakini, M. "Graphene oxide based supercapacitors from agricultural wastes: a step to mass production of highly efficient electrodes for electrical transportation systems", *Renew. Energy* **151** (2020) 731-739

Tanaka, T.; Osuka A.; "Conjugated porphyrin arrays: synthesis, properties and applications for functional materials." *Chem. Soc. Rev.* **44** (2015) 943–969.

Tejasvi, R. Basu, S. "Formation of C3N4 thin films through the stoichiometric transfer of the bulk synthesized g-C_3N_4 using RFM sputtering." *Vacuum* **171** (2020) 108937-108947

Teo, E.Y.L. Muniandy, L. Ng, E.P. Adam, F. Mohamed, A.R. Jose, R. Chong, K.F. "High surface area activated carbon from rice husk as a high performance supercapacitor electrode." *Electrochim. Acta.* **192** (2016) 110–119.

Terrones, M., and Terrones, H. Efficient route to large arrays of CNx nanofibers by pyrolysis of ferrocene/melamine mixtures." *Appl. Phys. Lett.,* **75** (1999) 3932–3934.

Thakur, A. K. Choudhary, R. B. Majumder, M. Gupta, G. Shelke, M. V. "Enhanced electrochemical performance of polypyrrole coated MoS_2 nanocomposites as electrode material for supercapacitor application." *J. Electroanal. Chem.,* **782** (2016) 278.

Tiwari, J.N. Tiwari, R.N. Kim, K.S. "Zero-dimensional, one-dimensional, two-dimensional and three-dimensional nanostructured materials for advanced electrochemical energy devices." *Progress in Materials Science.,* **57** (2012) 724–803.

Tiwari, M.; Kumar A.; Umre, H. S.; Prakash, R. "Microwave-assisted chemical synthesis of conducting polyindole: Study of electrical property using Schottky junction." *J. Appl. Polym. Sci.* **132** (2015) 42192–42199.

Tiwari, S.; Singh, A. K.; Joshi L.; Chakrabarti, P.; Takashima, W.; Kaneto, K.; Prakash. R. "Poly-3-hexylthiophene based organic field-effect transistor: Detection of low concentration of ammonia", *Sens. Actuators,* **171** (2012) 962–968.

Tommie, W.K.; Paul, F. B.; Chris, G,; David, E. E.; Michael, A. H.; Dennis E. V.; Steven, D. T. "Recent Progress in Organic Electronics: Materials, Devices, and Processes." *Chem. Mater*. **16** (2004) 4413–44227.

Uppugalla, S. Male, U. Srinivasan, P. "Design and synthesis of heteroatoms doped carbon/polyaniline hybrid material for high performance electrode in supercapacitor application." *Electrochim. Acta.,* **146** (2014) 242-248.

Vattikuti, S.V.P. Reddy, B.P. Byon, C. Shim, J. "Carbon/CuO nanosphere-anchored g-C_3N_4 nanosheets as ternary electrode material for Supercapacitors", *J. Solid State Chem.* **262** (2018) 106–111

Veerakumar, P. Sangili, A. Manavalan, S. Thanasekaran, P. Lin, K.C. "Research Progress on Porous Carbon Supported Metal/Metal Oxide Nanomaterials for Supercapacitor Electrode Applications." *Ind. Eng. Chem. Res.* **59** (14) (2020) 6347–6374.

Verma, C. J. Kumar, A. Ojha, R.P.Prakash, R. "Au-V2O5/Polyindole composite: An approach for ORR in different electrolytes." J. Electroanal. Chem., **861** (2020) 113959.

Verma, C.J. Panday, R.K. Prakash, R. "In situ one step synthesis of Fe inserted octaethylporphyrin/polyindole: A multifunctional hybrid material with improved electrochemical and electrical properties", *Mater. Sci. Eng. B* **227** (2018) 80–88

Vinu, A. Srinivasu, P. Mori, T. Sasaki, T. "Novel Hexagonally Ordered Nitrogen-doped Mesoporous Carbon from SBA15/Polyaniline Nanocomposite." *Chemistry Letters.,* 36(6) (2007) 770-771

Wahid, M. Puthusseri, D. Phase, D. Ogale S. "Enhanced Capacitance Retention in a Supercapacitor Made of Carbon from Sugarcane Bagasse by Hydrothermal Pretreatment", Energy Fuels 28 (2014) 4233−4240.

Wallace, P. R. "The Band Theory of Graphite." *Phys. Rev.,* **71 (**1947) 622.

Wang, A. Cheng, L. Chen, X. Li, C. Zhang, J. Zhu W. "Efficient optical limiting of polypyrrole ternary nanohybrids co-functionalized with peripherally substituted porphyrins and axially-coordinated metal-porphyrins." *Dalton Trans.,* 48(38) (2019) 14467-14477.

Wang, A.; wang, Y.;Huang, Z.; Zhou, F.; Song, J.; Song, Y.;Long, L.;Shao, J.; Zhang, C. "Covalent functionalization of reduced graphene oxide with porphyrin by means of diazonium chemistry for nonlinear optical performance." *Sci. Rep.* **6** (2016) 23325.

Wang, B. Wang, Y. H. Peng, Y. Y. Wang, X. Wang, J.. Zhao, J. B "3-dimensional interconnected framework of N-doped porous carbon based on sugarcane bagasse for application in supercapacitors and lithium ion batteries." *J. Power Sources.,* **390** (2018) 186–196.

Wang, D. H.; Pan, J. N., Li, H. H.; Liu, J. J.; Wang, Y. B.; Kang L. T.; Yao, J. N. "A pure organic heterostructure of μ-oxo dimeric iron(III) porphyrin and graphitic C3N4 for solar H2 Production from water." *J. Mater. Chem. A* **4** (2016) 290–292.

Wang, D. Xu, L. Wang, Y. Xu, W. "Rational synthesis of porous carbon nanocages and their potential application in high rate Supercapacitors", *J. Electroanal. Chem.* **815** (2018) 166–174

Wang, L. yang, H. Xu, L. Peng, C. "Three-dimensional kenaf stem derived macroporous carbon/reducedgraphene oxide/polyaniline integrated electrode for Supercapacitors." *ElectrochimicaActa* **281** (2018) 638-645

Wang, L. Yao, Q. Bi, H. Huang, F. Wang, Q. Chen, L. "PANI/graphene nanocomposite films with high thermoelectric properties by enhanced molecular ordering*." J. Mater. Chem. A.* **3** (2015) 7086–7092.

Wang, M. Wang, Q. Zhu, W. Yang, Y. Zhou, H. Zhang, F. Zhou, L. Raz J.M. Wallace, G.G. Chen, J. "Metal porphyrin intercalated reduced graphene oxide nanocomposite utilized for electrocatalytic oxygen reduction." *Green Energy&Environment.,* **2** (2017) 285-293.

Wang, Q. Yao, Q. Chang, J. Chen, L. "Enhanced thermoelectric properties of CNT/PANI composite nanofibers by highly orienting the arrangement of polymer chains" *J. Mater. Chem.,* **22** (2012) 17612–17618.

Wang, Q. Zhang, Y. Xiao, J. Jiang, H. Hu, T. Meng, C. "Copper oxide/cuprous oxide/hierarchical porous biomass-derived carbon hybrid composites for high-performance supercapacitor electrode." *J. Alloys Compd*. **782** (2019) 1103-1113.

Wang, W. Wu, S. "A new ternary composite based on carbon nanotubes/ polyindole/ graphene with preeminent electrocapacitive performance for Supercapacitors.", *Appl. Surface Sci.* **396** (2017) 1360–1367

Wang, X. Wu, D. Song, X. Du, W. Zhao, X. Zhang, D. "Review on Carbon/Polyaniline Hybrids: Design and Synthesis for Supercapacitor." *Molecules* **24** (12) (2019), 2263-2281,

Wang, X. Yun, S. Fang, W. Zhang, C. Liang, X. Lei, Z. Liu, Z. "Layer-stacking activated carbon derived from sunflower stalk as electrode materials for high-performance Supercapacitors", *ACS Sustainable Chem. Eng.* **6** (2018) 11397–11407.

Wang, Y. Song, Y. Xia, Y. "Electrochemical capacitors: mechanism, materials, systems, characterization and applications." *Chem. Soc. Rev.* **45** (2016) 5925–5950

Wang, Y. Wang, C. Wang, Y. Liu, H. Huang, Z. "Superior sodium-ion storage performance of Co3O4@Nitrogendoped carbon: Derived from a metal-organic framework." *J. Mater. Chem. A,* **4** (2016) 5428-5435.

Watanabe, S.; Ando, K.; Kang, K.; Mooser, S.; Kurebayashi, H.; Saitoh, E.; Sirringhaus, H.; Vaynzof, Y. "Polaron spin current transport inorganic semiconductors." *Nat. Phys.* **10** (2014) 308–313.

Wei, B. Liang, H. Wang, R. Zhang, D. Qi, Z. Wang, Z. "One-step synthesis of graphitic-C_3N_4 /ZnS composites for enhanced supercapacitor performance." *J. Energy Chem.* **27** (2018) 472–477

Wei, C. Yu, J. Yang, X. Zhang, G. "Activated Carbon Fibers with Hierarchical Nanostructure Derived from Waste Cotton Gloves as High-Performance Electrodes for Supercapacitors." *Nanoscale Res. Lett.,* **12** (2017) 379-384.

Williams, D.B. Carter, C.B "transmission electron microscope." 2nd edition, Springer

Wu, D. Zhong, W. "A new strategy for anchoring a functionalized graphene hydrogel in a carbon cloth network to support a lignosulfonate/polyaniline hydrogel as an integrated electrode for flexible high areal-capacitance Supercapacitors." *J. Mater. Chem. A.* **7** (2019) 5819 –5830.

Wu, K.H. Shi, W. Wang, D. Xu, J. Ding, Y. Lin, Y. Qi, W. Zhang, B. Su, D. "In Situ Electrostatic Modulation of Path Selectivity for the Oxygen Reduction Reaction on Fe–N Doped Carbon Catalyst." *Chem. Mater.* **29** (11) (2017) 4649–4653

Wu, Q., Xu, Y., Yao, Z., Liu, A. Shi, G. "Supercapacitors Based on Flexible Graphene/Polyaniline Nanofiber Composite Films." *ACS Nano* **4** (2010) 1963–1970

Wu, Y.Z. Chen, M. Yan, X.H. Ren, J. Dai, Y. Wang, J.J. Pan, J.M. Wang, Y.P. Cheng, X.N. "Hydrothermal synthesis of Fe_3O_4 nanorods/ graphitic C_3N_4 composite with enhanced supercapacitive performance." *Mater. Lett.* **198** (2017) 114–117

Xia, C. Shi, S.Q. "Self-activation for activated carbon from biomass: Theory and parameters", *Green Chem.* **18** (2016) 2063–2071.

Xia, Y. Yang, Z. Mokaya, R. "Synthesis of hollow spherical mesoporous N-doped carbon materials with graphitic framework." *Studies in Surface Science and Catalysis*., **156** (2005) 565-572.

Xiao, X. Peng, X. Jin, H. Li, T. Zhang, C. Gao, B. Hu, B. Huo, K. Zhou, J. "Freestanding mesoporous VN/CNT hybrid electrodes for flexible all-solid-state Supercapacitors." *Adv. Mater*., **25** (2013) 5091–5097

Xu, F. Xu, H. Chen, X. Wu, D. Wu, Y. Liu, H. Gu, C. Fu, R. Jiang, D. "Radical Covalent Organic Frameworks: A General Strategy to Immobilize Open-Accessible Polyradicals for High-Performance Capacitive Energy Storage." *Angew. Chem., Int. Ed.,* **54** (2015) 6814.

Xu, S. Wang, G. Biswal, B. P. Addicoat, M. Paasch, S. Sheng, W. Zhuang, X. Brunner, E. Heine, T. Berger, R. Feng, X. "A Nitrogen-Rich 2D sp2 Carbon-Linked Conjugated Polymer Framework as a High-Performance Cathode for Lithium-ion Batteries." *Angew. Chem. Int. Ed.*, **58(**3) (2019) 849-853.

Xu, Y. Zhou, Y. Guo, J. Zhang, S. Lu, Y. "Preparation of SnS_2/g-C_3N_4 composite as the electrode material for supercapacitor", *J. Alloys Compd.* **806** (2019) 343–349

Xu, Z.; Mei, Q.; Weng, J.; Huang, W. "Synthesis, characterization and properties of covalently linked porphyrin–naphthalimide pentamer and its metal complexes." *J. Mol. Struct*. **1074** (2014) 687–694.

Yan, Q. L. Gozin, M. Zhao, F.Q. Cohen, A. Pang, S.P. "Highly energetic compositions based on functionalized carbon nanomaterials." *Nanoscale.,* **8** (2016) 4799–4851.

Yang, J. Xu, M. Wang , J. Jin, S. Tan, B. "A facile approach to prepare multiple Heteroatom-doped carbon materials from Imine linked porous organic polymers." *Sci. Rep*., **8** (2018) 4200-42012.

Yang, S. Gong, Y. Zhang, J. Zhan, L. Ma, L. Fang, Z. Vajtai, R. Wang, X.C. Ajayan, P.M. "Exfoliated graphitic carbon nitride nanosheets as efficient catalysts for hydrogen evolution under visible light", *Adv. Mater.* **25** (2013) 2452–2456

Ye, L. Wang, D. Chen, S. "Fabrication and enhanced photoelectrochemical performance of MoS_2/S-doped g-C_3N_4 heterojunction film." *ACS Appl. Mater. Interfaces* **8** (2016) 5280–5289

Yu, D., Xue, Y. Dai, L. "Vertically Aligned Carbon Nanotube Arrays Co-doped with Phosphorus and Nitrogen as Efficient Metal-Free Electrocatalysts for Oxygen Reduction." *J. Phys. Chem. Lett.,* **3** (2012) 2863–2870.

Zahid, M. U. Pervaiz, E. Hussain, A. Shahzad, M. I. Niazi, M. B. K. "Synthesis of Carbon Nanomaterials from Different Pyrolysis Techniques: A Review." *Mater. Res. Express.*, 5 (2018) 052002-052013.

Zhang K., Zhang L.L., Zhao X.S., Wu J. Graphene/Polyaniline Nanofiber Composites as Supercapacitor Electrodes. *Chem. Mater.* **22** (2010)1392–1401.

Zhang, C., Mahmood, N., Yin, H., Liu, F. Hou, Y. "Synthesis of Phosphorus-Doped Graphene and its Multifunctional Applications for Oxygen Reduction Reaction and Lithium Ion Batteries." *Adv. Mater.,* **25** (2013) 4932–4937.

Zhang, G. Xiao, X. Li, B. Gu, P. Xue, H. Pang, H. "Transition metal oxides with one-dimensional/one dimensional-analogue nanostructures for advanced Supercapacitors." *J. Mater. Chem. A* **5** (2017) 8155–8186

Zhang, H. Lu, M. Wang, H. Lyu, Y. Li, D. Sun, S. Shi, J. Liu, W. "Boosting pseudocapacitive charge storage in situ functionalized carbons with a high surface area for high-energy asymmetric Supercapacitors." *Sustain. Energy Fuels* **2** (2018) 2314–2324.

Zhang, H. Zhang, Y. Gu, C. Ma, Y. "Electropolymerized Conjugated Microporous Poly(zinc-porphyrin) Films as Potential Electrode Materials in Supercapacitors." *Adv. Energy Mater.,* **5** (2015) 1402175.

Zhang, J. Ding, J. Li, C. Li, B. Li, D. Liu, Z. Cai, Q. Zhang, J. Liu, Y. "Fabrication of novel ternary three-dimensional RuO_2/graphitic‑C_3N_4@reduced graphene oxide aerogel composites for Supercapacitors." *ACS Sustainable Chem. Eng.* **5** (2017) 4982−4991

Zhang, L. Du, W. Nautiyal, A. Liu, Z. and Zhang, X. "Recent progress on nano-structured conducting polymers and composites: synthesis, application and future aspects." *Sci. China. Mater.,* **61**(3) (2018) 303-352.

Zhang, L. L. Zhao, X. S. "Carbon-based materials as supercapacitor electrodes." *Chem. Soc. Rev.,* **38** (2009) 2520–2531.

Zhang, L. Ou, M. Yao, H. Li, Z. Qu, D. Liu, F. Wang, J. Wang, J. Li, Z. "Enhanced supercapacitive performance of graphite-like C_3N_4 assembled with NiAl-layered double hydroxide", *Electrochim. Acta* **186** (2015) 292–301

Zhang, Q. Han, K. Li, S. Li, M. Li, J. Ren, K. "Synthesis of garlic skin-derived 3D hierarchical porous carbon for high-performance Supercapacitors", *Nanoscale* **10** (2018) 2427–2437.

Zhang, Y. Feng, H. We, X. B. Wang, L. Z. Zhang, A. Q. Xia, T. C. Dong, H. C. Li, X. F. zhang, L. S. "Progress of electrochemical capacitor electrode materials: A review." Int. J. Hydrgen Energy., **34** (2009) 4889-4899

Zhang, Y. Zhang, J.M. Hua, Q. Zhao, Y. Yin, H. Yuan, J. Dai, Z. Zheng, L. Tang, J. "Synergistically reinforced capacitive performance from a hierarchically structured composite of polyaniline and cellulose-derived highly porous carbons." *Mater. Lett.* **244** (2019) 62–65.

Zhang, Z. Li, H. Yang, Y. Key, J. Ji, S. Ma, Y. Wang, H. Wang, R. "Cow dung-derived nitrogen-doped carbon as a cost effective, high activity, oxygen reduction electrocatalyst." *RSC Adv.,* **5 (**2015) 27112-27119.

Zhao, J. Li, Z. Yuan, X. Yang, Z. Zhang, M. Meng, A. Li, Q. "A High-Energy Density Asymmetric Supercapacitor Based on Fe2O3 Nanoneedle Arrays and $NiCo_2O_4$/$Ni(OH)_2$ Hybrid Nanosheet Arrays Grown on SiC Nanowire Networks as Free-Standing Advanced Electrodes." *Adv. Energy Mater.,* **8** (2018) 1702787.

Zhao, S. Wang, C.Y. Chen, M.M. Wang, J. Shi, Z.Q. "Potato starch-based activated carbon spheres as electrode material for electrochemical capacitor." *J. Phys. Chem. Solids.,* **70** (2009) 1256–1260.

Zhao, Y. Xu, L. Huang, S. Bao, J. Qiu, J. Lian, J. Xu, L. Huang, Y. Xu, Y. Li, H. "Facile preparation of TiO_2/C_3N_4 hybrid materials with enhanced capacitive properties for high performance Supercapacitors." *J. Alloys Compd.* **702** (2017) 178–185

Zhao-Karger, Z. Gao, P. Ebert, T. Klyatskaya, S. Chen, Z. Ruben, M. Fichtner, M. "New Organic Electrode Materials for Ultrafast Electrochemical Energy Storage." *Adv. Mater.,* **31 (**2019) 1806599.

Zhijiang, C.; Guang, Y. "Synthesis of polyindole and its evaluation for Li-ion battery applications." *Synth. Met.* **17** (2010) 1902–1905.

Zhong, M. Song, Y. Li, Y. Ma, C. Zhai, X. shi, J. Guo, Q. Liu, L. "Effect of reduced graphene oxide on the properties of an activated carbon cloth/polyaniline flexible electrode for supercapacitor application", *J. Power Sources* **217** (2012) 6-12.

Zhou, D. D. et al. "A nitrogen-doped ordered mesoporous carbon nanofiber array for Supercapacitors." *J. Mater. Chem. A.,* **1** (2013) 8488–8496.

Zhou, D.D. Li, W.Y. Dong, X.L. Wang, Y.G. Wang, C.X. Xia, Y.Y. "A nitrogen-doped ordered mesoporous carbon nanofiber array for Supercapacitors", *J. Mater. Chem. A.* **1** (2013) 8488–8496.

Zhou, K. Zhou, W. Liu, X. Wang, Y. Wan, J. Chen, S. "Nitrogen Self-Doped porous carbon from surplus sludge as metalFree electrocatalysts for oxygen reduction reactions." *ACS Appl. Mater. Interfaces.* **6** (2014) 14911−14918.

Zhou, Q. Zhu, D. Ma, X. Xu, J. Zhou, W. Zhao, F. "High-performance capacitive behavior of layered reduced graphene oxide and polyindole nanocomposite materials", *RSC Adv.* **6** (2016) 29840–29847

Zhou, S.X. Tao, X.Y. Ma, J. Guo, L.T. Zhu, Y.B. Fan, H.L. Liu, Z.S. Wei, X.Y. "Synthesis of flower-like PANI/g-C3N4 nanocomposite as supercapacitor electrode." *Vacuum* **149** (2018) 175-179.

Zhou, W.; Du, Y.; Ren, F.; Wang, C.; Xu, J.; Yang, P. "High efficient electrocatalytic oxidation of methanol on Pt/polyindoles composite catalysts." *Int. J. Hydrogen Energy*, **35** (2010)

Zhou, X. Chen. Q. Wang, A. Xu. J. Wu, S. Shen, J. "Bamboo-like Composites of V2O5/Polyindole and Activated Carbon Cloth as Electrodes for All-Solid-State Flexible Asymmetric Supercapacitors." *ACS Appl. Mater. Interfaces.* **6** (2016) 3776–3783.

Zhou, X. Wang, A. Pan, Y. Yu, C. Zou, Y. Zhou, Y. Chen, Q. Wu, S. "Facile synthesis of a Co_3O_4@carbon nanotubes/ polyindole composite and its application in all solid-state flexible Supercapacitors." J. *Mater. Chem. A* **3** (2015) 13011–13015

Zhou, Z.P. Wu, X.F. Hou, H.Q. "Electrospun carbon nanofibers surface grown with carbon nanotubes and polyaniline for use as high-performance electrode materials of Supercapacitors." *RSC Adv.,* **4**(45) (2014) 23622-23629.

Zhu, X. Yu, S. Xu, K. Zhang, Y. Zhang, L. Lou, G. Wu, Y. Zhu, E. Chen, H. Shen, Z. Bao, B. Fu, S. "Sustainable activated carbons from dead ginkgo leaves for supercapacitor electrode active materials." *Chem. Eng. Sci.* **181** (2018) 36–45.

Zhu, X. Zhang, P. Xu, S. Yan, X. Xue, Q. "Free-Standing Three-Dimensional Graphene/Manganese Oxide Hybrids As Binder-Free Electrode Materials for Energy Storage Applications." *ACS Appl. Mater. Interfaces.,* **6** (2014) 11665–11674

Zhu, Y. Murali, S. Stoller, M.D. Ganesh, K.J. Cai, W. Ferreira, P.J. Pirkle, A. Wallace, R.M. Cychosz, K.A. Thommes, M. Su, D. Stach, E.A. Ruoff, R.S. "Carbon-based supercapacitors produced by activation of graphene." *Science*., **332** (2011) 1537–1541

Zidi, R. Bekri-Abbes, I. Sdiri, N. Vimalanandan, A. Rohwerder, M. Srasra, E. "Electrical and dielectric investigation of intercalated polypyrrole montmorillonite nanocomposite prepared by spontaneous polymerization of pyrrole into Fe(III)-montmorillonite." *Mater. Sci. Eng. B.,* **212** (2016) 14–23.